fossil animal were found. The report spread that it was a fossil man, and the proprietor asked an enormous price for it, until he was at last convinced it was a reptile. It then fell into the hands of Dr. Capellini, who found it to be a tortoise of the Sphargis group.——M. A. Gaudry recently presented to the Paris Academy of Sciences a note upon a new sirenian found in the Paris basin, and named by him *Haliterium chongueti*. It occurs in the *Ostrea cyathula* marls, and must not be confounded with *H. schinzi*.

Trias.—At a recent meeting of the Royal Geological Society Professor Owen described *Rhytidosteus capensis*, a labyrinthodont amphibian from the Trias of the Cape of Good Hope. The specimen consisted of the anterior part of the skull with a portion of the mandible attached.

Tertiary.—E. T. Newton has recently written upon the antelope remains from the newer Pliocene beds of Britain, and has described a gazelle which, though near to *G. bennettii*, he regards as new, and entitles *G. anglica.*

Quaternary.—M. G. Rolland has presented to the Academy of Sciences of Paris a series of objections to the theory of a quaternary Saharian sea. One of these is the absence of any true bed of marine fossils in the recent strata of the Sahara, since *Cardium edule* is rather a brackish-water than a marine species. A second objection is derived from the levels. M. Rolland believes that from the commencement of the tertiary the Sahara formed a continent except in the relatively narrow space in the north-east, occupied by the eocene sea; at the end of the miocene all the north of Africa had definitely emerged, and since that epoch the contour of the southern coast of the Mediterranean has not sensibly varied. Both M. Rolland and M. Pomel consider the quaternary formation of the Sahara as continental in origin, and deposited by diluvial waters in an age when the Sahara was abundantly supplied with rivers.

MINERALOGY.[1]

NEW MINERALS.—(1). *Aimafibrite*[2] (Igelström).—Among the manganese minerals of Nordmark, Sweden, are several new species, described by Igelström and others. Aimafibrite, so called from its blood-red color and fibrous structure, is a basic hydro-arseniate of protoxide of manganese with a little protoxide of iron, magnesia and lime. Its crystalline form is an orthorhombic prism, the crystals radiating from a point and forming globules. It occurs in globules about a centimeter in diameter, which are made up of radiating fibers. It is soluble in acid, gives water in

[1] Edited by Professor H. CARVILL LEWIS, Academy of Natural Sciences, Philadelphia, to whom communications, papers for review, etc., should be sent.

[2] Bull. Soc. Min. de France, VII, 1884, p. 121.

the tube, fumes of arsenic on charcoal, readily melts without decrepitation and gives decided reactions for manganese.

Analysis gives:

As_2O_5	MnO	FeO	MgO	CaO	H_2O	
29.94	46.98	4.65	2.00	1.50	14 93	= 100

Formula: $2(3MnO\ As_2O_5) + 7MnO\ HO + 6HO$

(2) *Aimatolite*[1] (Igelström).—At the same locality, associated with the last, is a blood-red transparent mineral having the appearance of precious garnet. It occurs always in crystals and is imbedded in limestone. The crystals are from one to two millimeters in diameter, and according to an investigation by Bertrand, occur in rhombohedrons, and have a perfect basal cleavage. It has the same blowpipe characters as aimafibrite.

Composition:

As_2O_5	MnO	FeO	MgO	CaO	H_2O	
25.70	34 55	13.05	8.10	2.52	16.08	= 100

Formula: $2(3MnO\ As_2O_5) + 8MnO\ HO + 6HO$

(3) *Allaktite*[2] (Sjögren).—This is another arseniate of manganese from the same locality. It is of yellow to green color and occurs in flat tabular crystals, belonging to the monoclinic system. Crystallographically it is regarded as related to the vivianite group of minerals. It has a hardness of 4 to 5, and spec. grav. 3.83–3.85.

Composition:

As_2O_5	MnO	FeO MgO CaO	H_2O	
28.57	61.92	1.15	9.01	= 100.65

Formula: $2(3MnO\ As_2O_5) + 8MnO\ HO + HO$

For comparison with the three formulæ here given that of a fourth hydro-arseniate of manganese from the same locality is added. The formula of chrondroarsenite is $2(5MnO\ As_2O_5) + 5HO$. Of these four minerals the least basic is chrondroarsenite, and the most basic, aimalolite.

(4) *Bröggerite*[3] (Blomstrand).—This mineral is yet another from the same prolific locality. It is an uranium mineral allied to uraninite. It occurs in black crystals of the isometric system and in crystalline masses. The octahedron is the common form. Hardness 5–6; specific gravity 8.73.

Composition:

UO_3	UO_2	PbO	ThO_2	Ce_2O_3	Y_2O_3	FeO	CaO	SiO_2	H_2O	
38.82	41.25	8.41	5.64	0.35	2.42	1.26	0.30	0.81	0.83	= 110.12

(5) *Colemanite*[4] (Evans).—J. T. Evans has given this name

[1] Bull. Soc. Min. de France, VII, 1884, p. 121.

[2] Geol. För. Förh. Stockholm, VII, 1884, p. 109.

[3] Geol. För. Förh. Stockholm, VII, 1884, p. 59.

[4] Bull. Calif. Acad. Sciences, No. 1, p. 57.

(called after W. T. Coleman) to a hydrous borate of calcium from Southern California. It is described as possessing monoclinic crystallization; $I \wedge I = 108\frac{1}{4}°$. Luster vitreous to adamantine, often splendent. Cleavage clinodiagonal, perfect, affording readily thin, smooth and polished laminæ. Hardness 3.5 in the amorphous to 4.25 in the crystalline variety. Specific gravity 2.428. Colorless, transparent, sub-translucent to milky. Rather brittle. It decrepitates violently and then sinters in the blowpipe flame. Readily soluble in acid, giving abundant flakes of boracic acid. Admixtures of soda were found even in the clearest crystals.

Disregarding the soda the composition is:

B_2O_3	CaO	H_2O		
[50.98]	27.18	21.84	=	100

The formula $2CaO\ 3B_2O_3 + 5H_2O$ is deduced.

It is closely allied to priceite and is perhaps identical with it. Analysis of the massive mineral are stated to give results closely agreeing with the formula of priceite.

(6) *Manganostibite*[1] (Igelström).—This mineral occurs at Nordmark, Sweden, with other manganese minerals in primitive limestone (Laurentian). It occurs in small black grains, resembling magnetite or hausmannite. It is compact with difficult cleavage and with greasy luster. It is supposed to be orthorhombic. Before the blowpipe it is infusible, and with carbonate of soda gives fumes of arsenic and antimony. Reactions for manganese are readily obtained. It is perfectly soluble in chlorhydric acid, but in nitric acid gives insoluble oxide of antimony.

Composition:

Sb_2O_5	As_2O_5	MnO	FeO	CaO	MgO		
24.09	7.44	55.77	5.00	4.62	3.00	=	99.92

Formula: $5MnO\ (Sb\ As)_2\ O_5$

(7) *Salmite*[2] (Prost).—This is described as a manganesian variety of chloritoid, occurring in irregular masses at Vielsalm, Belgium. Color gray; hardness 5–6; specific gravity 3.38.

Composition:

Si_2O	Al_2O_3	Fe_2O_3	FeO	MnO	CoO	MgO	CaO	H_2O	Quartz		
19.14	33.66	3.38	13.05	7.14	0.04	1.79	0.30	6.32	15.06	=	99.88

(8) *Utahite*[3] (Damour).—Damour has proposed this name for a hydrous basic sulphate of peroxide of iron, which occurs in minute hexagonal crystals of micaceous structure in the mines of Eureka Hill, Juab county, Utah. The specimens were taken to France by Ochsenius, and first described by Arzuni, but named by Damour. The crystals of this mineral are of a yellowish-brown color and so small as hardly to be visible to

[1] Bull. Soc. Min. de France, VII, 1884, p. 120.

[2] Geolog. Soc. Belge.

[3] Bull. Soc. Min. de France, VII, 1884, p. 126.

the naked eye. They form a crust on compact quartzite. They occur in regular hexagonal prisms and have a micaceous basal cleavage. They are optically uniaxial, and belong, therefore, to the hexagonal system.

Heated in a matrass, acid water is disengaged, and the mineral becomes red. In the blowpipe flame it fuses to a black scoria. It is attacked by chlorhydric acid heated to the boiling point, but not by nitric acid.

Analysis gave (Damour):

SO_3	AsO_5	Fe_2O_3	H_2O
28.45	3.19	58.82	9.32

Formula; $3Fe_2O_3\ 3SO_3 + 4H_2O$

FLEXIBLE SANDSTONE.—In a note in the June NATURALIST on flexible sandstone from Pennsylvania, its flexibility was regarded as due to its decomposition. As regards the itacolumite of Brazil, Mr. J. C. Branner, formerly of the Geological Survey of Brazil, writes to us as follows:

"I once spent a year in the diamond region of Minas Geraes, Brazil, where I had the best of opportunities for observing the itacolumite, which is there the country rock. In one place a canal several miles in length was being cut by a mining company, and in many places through this flexible sandstone. Owing to its flexibility it was very difficult to blast, for instead of breaking out in large fragments, the rock would often yield and bend like so much leather, and only a few fragments would be broken off about the mouth of the hole. On account of this difficulty in blasting, it was frequently necessary to cut it out with the pick. In one place the rock was cut through to a depth of about twenty-five feet from the surface, and yet at the bottom of this cut the decomposition and flexibility was almost as marked as near the surface. But in the deep gold mines in the itacolumite this flexibility was never found very far beneath the surface. I regret to say that I made no exact measurement of the depths at which it ceases. I may say, however, that at a distance of about a hundred feet from the surface this sandstone was no longer yellowish or light brown, but was of a somewhat leaden color, and that its characteristic flexibility had disappeared entirely.

"Again at a certain stage of decomposition more advanced than that indicated by flexibility, this sandstone simply fell apart when broken in the hand, or could be cut through more easily than ordinary earth. It would be interesting to study the depth of decomposition of itacolumite by noting the depth at which it ceases to be flexible."

MINERALOGICAL NOTES.—A union has been effected between the Mineralogical Society and the Crystallogical Society of Great Britain. The Crystallogical Society brings with it several mineralogists of high attainments, who will be likely to make the

Mineralogical Magazine a more valuable journal than it has been heretofore. Several of the articles in that journal have been more notable for quantity than quality. Like the other English societies the Mineralogical Society has gravitated to London, although originally intended as a peripatetic society.——Native lead has been observed in cavities in red carbonate of lead from Maulmain, Burma, India. It occurs in small masses associated with minute crystals of white cerussite. The bright red color of the cerussite containing the native lead is probably due to an intimate mixture of minium.——H. A. Miers, of the British Museum, has measured with a Fuess goniometer several crystals of the rare mineral *meneghinite*. It occurs in slender needles, and the end planes are very small. The needles are deeply striated or channeled, making measurements difficult. A number of new faces were observed, and the crystals determined to be *orthorhombic*, with the axial lengths a : b : c = 1.89046 : 1 . .68664.——Associated with galena, and filling cavities in quartz, an interesting form of *kaolinite* occurs in Ouray county, Colorado. The mineral appears as a mass of glistening white scales visible to the naked eye, and under the microscope show as perfect transparent crystals having well-defined pyramidal planes.——Dr. M. E. Wadsworth has issued a descriptive catalogue of one hundred thin sections of American and foreign rocks for the use of students of microscopical lithology. The collection consists of European rocks described by Rosenbusch, Zirkel and several other European lithologists, together with a number of American rocks described by Dr. Wadsworth. This appears to be the most complete and systematic collection for students that has yet been arranged.

BOTANY.[1]

THE FERTILIZATION OF GIANT HYSSOP (LOPHANTHUS NEPETOIDES).—The giant hyssop has greenish-yellow flowers about one centimeter long. The inner stamens are the longest and are the first to appear on the opening of the bud (Fig. 1). While the outer or shorter pair of anthers develop and take a position

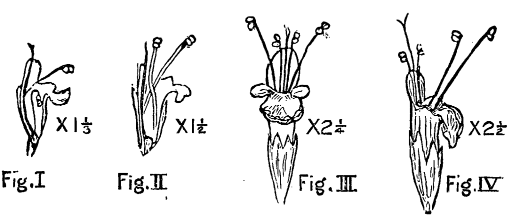

FIG. 1.—Section of opening flower. FIG. 2.—Section of open flower. FIG. 3.—The same, front view. FIG. 4.—Side view of flower with the stigma-lobes mature.

close to the upper lip, the inner or longer stamens move forwards so that the filaments of the two sets cross each other (Fig. 2). The inner stamens therefore are near the lower lip of the corolla

[1] Edited by PROF. C. E. BESSEY, Ames, Iowa.